MODIS TECHNICAL TEAM MEETING

April 27, 1995

The MODIS Technical Team Meeting was chaired by Vince Salomonson. Present were Harry Montgomery, Bruce Guenther, David Herring, Chris Justice, Joann Harnden, Barbara Putney, Locke Stuart, John Barker, Wayne Esaias, Al Fleig, Steve Ungar, Yoram Kaufman, and Dick Weber.

1.0 SCHEDULE OF EVENTS

April 15	**Quarterly Reports Due to Barbara Conboy**
April 28	Level 2 Software Integration Review
April 30 - May 1	CEOS Meeting -- Best Western Hotel, Lanham, MD
May 2	MODIS Calibration Working Group -- Greenbelt Marriott
May 3 - 5	MODIS Science Team Meeting -- Greenbelt Marriott

2.0 MINUTES OF THE MEETING

2.1 MODIS Project Reports

Weber reported that SBRC has completed their testing of the MODIS Engineering Model (EM) at 305K. Now SBRC is planning to test the instrument at 275K.

Weber announced that SBRC has repaired the leak in their thermal vacuum chamber.

The MODIS EM focal plane is stable at 85K in the thermal vacuum chamber. SBRC is about to begin taking radiometric and spatial measurements. SBRC concluded based on cooler performance irregularities that there are some screw heads on the Space Analog Module (SAM) touching the radiative cooler, so that there is some heat reaching the cold stage. SBRC plans to correct this problem.

Weber stated that whereas a couple of days ago, many of the MODIS EM bands were saturated, there are now a substantial number of cold bands operational. According to Weber, Tom Pagano, of SBRC, is happy with the VIS / NIR data that SBRC is currently obtaining. Because Pagano and Jim Young are participating in the EM tests, they will not attend the MODIS Science Team Meeting. Lee Tessmer will attend the Day 1 Plenary Session and deliver the entire SBRC Status Report. Also, Pagano is sending a videotape to be shown at the meeting.

2.2 MCST Reports

Guenther reported that upon reviewing the MODIS Team Leader Agreement, there is a Calibration Plan Requirement to be met which differs from the Calibration ATBD. Guenther said that MCST is beginning to work on modifications to existing documents by Barker and Slater which comprise our

current version of the MODIS Calibration Plan. MCST intends to have a revision of at least some sections by mid-summer. However, MCST needs a definition of what testing is planned to be conducted at SBRC. Weber responded that SBRC has just completed a new version of their Performance Verification Plan. Guenther added that MCST's plan will be a review and verification of what test SBRC plans to do so that MCST can produce the Level 1B data products.

2.2.1 Beta 3 Delivery

Guenther announced that the MCST Beta 3 software will be delivered tomorrow. He told the Team that SDST has examined MCST's Beta 3 software in formal and informal reviews and his given favorable remarks. Guenther commended Geir Kvaran for taking the lead in meeting the Beta 3 delivery milestone.

2.2.2 Calibration Attitude Maneuvers

Guenther reported that a Calibration Attitude Maneuvers paper is being organized by Jim Butler, EOS Calibration Scientist. The MODIS Team is contributing to Butler's paper. According to Guenther, Bill Barnes is collecting inputs and will take the lead on submitting MODIS' contribution to Butler's paper.

2.3 SDST Reports

Fleig reported that SDST is holding an Integration Approach Review for Level 2 software tomorrow at GSC. Representatives from EOSDIS and ECS will attend that meeting.

2.3.1 CERES Instrument Simulator

Fleig reported attending the CERES Science Team Meeting last week. He told the Team that, originally, building an instrument simulator was included in the cost of building the CERES instrument. However, because government canceled the instrument simulator due to lack of funding, the CERES Team at LaRC has decided to build one. Fleig asked if there are plans to build a MODIS instrument simulator. If not, how does MODIS plan to test command loads before sending them? He noted that there have been cases where commands sent from the ground have disabled instruments in space. With a simulator, you can test the choice you are about to send.

Weber responded that he is not aware of any plans to build a MODIS instrument simulator. Guenther added that EOS Project is responsible for setting up the instrument support terminal, which will be used at Lockheed-Martin Marrietta, Valley Forge, as part of the overall integration and testing of the EOS AM platform. So, Guenther pointed out, MODIS' commands will not be sent by themselves; rather, they will be sent as part of the overall Flight Operations commands. Guenther said he presumes that Flight Operations will have software review systems in place so that no commands are sent without first going through the proper approval sequence.

Moreover, Guenther stated, the MODIS Instrument Specification says that the software cannot damage the instrument. Therefore, MCST will develop plans to indicate what the flight operations will be and will verify that the commands being tested at SBRC are consistent with the MODIS Specifications.

It was concluded that MCST has the obligation under the MODIS Team Leader Agreement to plan for MODIS' flight operations. Guenther stated that MCST will review the matter further and report back to the Technical Team at a later meeting.

2.3.2 CERES Document Distribution

Fleig reported that the CERES Team has established a document distribution system whereby they put a PostScript version of every document they want to share on their World Wide Web (WWW) server at Langley Research Center. The URL for the CERES document distribution site is http://asd-www.larc.nasa.gov/ceres/docs.html

2.3.3 CERES Data Products

Fleig stated that the CERES Team is preparing a report on what they think the status of their products are as a function of time. He feels that this is an interesting approach because the quality of some products will continue to change for several years after launch. Their report will show how their algorithms will improve over time.

2.3.4 Cloud Mask

Fleig said that at the CERES meeting it was pointed out that the cloud mask can detect clouds and cloud edges over land. However, they need input from MODLAND as to what minimum cloud level we want to have identified as a cloud. Additionally, they asked whether MODLAND has looked at the Pathfinder AVHRR data to see if MODLAND likes those cloud masks.

2.4 MODIS Simulated Data

Ungar reported that there are now two sets of MODIS simulated data available via File Transfer Protocol (FTP). Additionally, Ungar now has a base classification map ready. He said that according Chris Justice, his categorization is acceptable for now; it contains descriptions of the ground, spectral information, and TOA (top of atmosphere) radiances.

2.5 Access to Engineering Test Data

Justice stated that he and Esaias have discussed the need to use engineering test data to test their algorithms. Guenther responded that he feels that getting test data from the EM may not be worth the effort. He explained that the EM does not have most ghosting fixes in place, and that the first dichroic has many light scattering problems. He added that there is a chance that the first optical element will be replaced, as well as the first dichroic. In short, characteristics of that data set will be remarkable different than the data set from the PFM.

Justice said that the science investigators are interested in assessing the instrument performance impact on their algorithms. Justice felt that discussion of this issue is best continued at the MODIS Science Team Meeting. Esaias added that he is concerned that there is asymmetry due to the position of various bands on the MODIS focal planes.

Fleig showed a graphic of results from the ghosting analysis. A complete presentation on ghosting will be made at next week's Calibration Team Meeting.

2.6 SeaWiFS Update

Esaias told the Team that there were apparently some anomalies with vibration tests of the XL Rocket which may impact the SeaWiFS launch date.

2.6.1 Ocean Color Concerns

Esaias stated that Dave Glover cannot come to the MODIS Science Team Meeting, but will represent the ocean color community's concerns to the Science Steering Committee in Paris.

Esaias and Chuck McClain plan to brief Tony Busalacchi, chief of GSFC's Laboratory for Hydrospheric Processes, on their multisensor implementation plan tomorrow. The acronym for the plan is SIMBIOS (Sensor Intercomparison and Merging for Biological and Interdisciplinary Ocean Studies).

2.7 Validation

Kaufman stated that he would like to know more about the Team's plans for validation simulation. He asked if there is a deadline by which all algorithms are to be run through a validation simulation? He stated that from a principal investigator's perspective, a good simulation would be conducted both pre- and post-launch. Kaufman feels that this is important to the life of the mission. He feels that there should be a deadline for testing algorithms in the validation simulation.

Kaufman added that the CERES Team also feels strongly that such a validation simulation should be conducted. He stated that if NASA won't award funding for validation, then the Laboratory for Terrestrial Physics will have trouble supporting its sun photometer network. Currently, the MODIS Team doesn't have the funding to support Brent Holben's sun photometer network, and it is not clear that Brent Holben will be able to receive funding from HQ for his sun photometer operation. Kaufman stated that the sun photometer network requires about $300K to $500K per year to support.

Salomonson assigned an action item to the MODIS Data Validation Panel to discuss validation concerns and recommend what needs to be done to support MODIS' validation effort, and to identify funding sources.

2.7.1 SCAR-B Update

Kaufman told the Team that the SCAR-B Agreement was supposed to be signed by the Brazilian president last week during his visit to the United States. However, it was not. Kaufman said that despite that, and other small logistical problems, the SCAR-B team is going forward with their plans. Already, real money is being spent on the effort.

2.8 MAST Reports

Herring presented the final agenda for next week's MODIS Science Team Meeting (Attachment 1). He noted that Bill Barnes is now the moderator for roundtable session #5, entitled "Remote Sensing in the IR". Also, during the Final Plenary, the moderators, rather than the Discipline Leaders, will present summaries of the roundtable sessions.

Herring distributed an updated Action Item list from the last MODIS Science Team Meeting (Attachment 2).

3.0 ACTION ITEMS

1. *Herring*: Invite Bryan Baum, CERES Team member, to serve as a Panelist for the roundtable session entitled "Cloud Masking & Cloud Products". [CLOSED. Baum agreed to serve as a Panelist.]
2. *Conboy*: Send a reminder to the Science Team members, Moderators, and Panelists that the Science Team Meeting ends at 5 p.m. on Friday and that they should remain until the meeting is adjourned. [CLOSED.]
3. *MODIS Data Validation Panel*: Discuss the MODIS Validation Plan and recommend what needs to be done as part of the validation effort; also, identify funding sources.
4. *Guenther*: the MODIS Instrument Specification says that the software cannot damage the instrument. MCST Flight Operations group will be developing documentation which describes this task. MCST will provide the Technical Team with a description of the processes which assure us that the commanding for MODIS will be safe.

3.1 Action Items Carried Forward

1. *Dave Diner & Ed Masuoka:* MODIS and MISR need to settle on a protocol(s) to deal with Level 1 and Level 2 data sets to be passed between the two teams to produce joint products. Report at the next SWAMP Meeting.
2. *Guenther:* Report the modeled results of the 1,000K source for SBRC's integration and alignment collimator to the Technical Team. [These data are forthcoming.]
3. *Fleig and Ungar*: Interact with the group leaders to develop a MODIS data simulation plan for review at the next Science Team Meeting. [Work on this item is still in progress. Simulated data are now available via FTP, and a white paper is forthcoming from Fleig.]

4.0 ATTACHMENTS

NOTE: All attachments referenced below are maintained in MODARCH and are available for distribution upon request. Please contact David Herring, MAST Technical Manager, at (301) 286-9515, Code 920, NASA/Goddard Space Flight Center, Greenbelt, MD 20771 if you desire copies of any attachments.

1. MODIS Science Team Meeting Agenda, by David Herring
2. October 1994 MODIS Science Team Meeting Action Items, by David Herring